In re Patent Application of
MANARESI ET AL.
Serial No. 09/996,070
Filed: NOVEMBER 28, 2001
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Listing of the Claims:

This listing of claims is provided for the Examiner's convenience. No claims are amended in this response.

Claims 1-15 (canceled).

16. (Previously presented) A device for detecting pressure exerted at different points of a flexible object, the device comprising:

an array of pressure sensing pixel capacitors comprising column electrodes and row electrodes orthogonal to each other, and a plurality of individually spaced apart elastically compressible dielectric pads positioned between each respective crossing of the column electrodes and row electrodes; and

a system for biasing and reading the capacitance of the pressure sensing pixel capacitors, and comprising

column electrode selection circuits,

row electrode selection circuits, and

a logic circuit connected to the column and row electrode selection circuits for sequentially scanning the pressure sensing pixel capacitors and outputting pixel values of the pressure for constructing a distribution map of the pressure over an area of the array.

17. (Previously presented) The device of Claim 16, wherein the column electrodes and row electrodes each comprise a fabric including weft oriented threads of dielectric material and warp oriented threads alternately of a conducting material and of a dielectric material.

18. (Previously presented) The device of Claim 16, wherein the column electrodes and row electrodes each comprise parallel stripes of conductive paint.

19. (Previously presented) The device of Claim 16, wherein the column electrodes and row electrodes each comprise a plurality of stripes of adhesive tape incorporating a thread of conductive material, the stripes of adhesive tape being laid over each other with the respective elastically compressible dielectric pad interposed at each crossing.

20. (Previously presented) The device of Claim 19, wherein the respective elastically compressible dielectric pad has a metal coating on both faces contacted by the thread of conductive material of the respective adhesive tape of one of the column and row electrodes.

21. (Previously presented) The device according to Claim 19, wherein the respective elastically compressible dielectric pad comprises a gas filled cushion, the opposite faces of which elastically swell and shrink depending on the

pressure difference between the filling gas of the cushion and ambient air.

22. (Previously presented) The device according to Claim 19, wherein the flexible object comprises a sail, and wherein the array of pressure sensing pixel capacitors is fixed on both faces thereof.

23. (Previously presented) A bidimensional pressure sensor for producing a distribution map of pressure over a surface of a flexible object, the sensor comprising an array of pressure sensing pixel capacitors comprising column electrodes and row electrodes orthogonal to each other, and a plurality of individually spaced apart elastically compressible dielectric pads positioned between each respective crossing of the column electrodes and row electrodes, and readable by sequentially scanning the pixel capacitors.

24. (Previously presented) The sensor of Claim 23, wherein the column electrodes and row electrodes each comprise a fabric including weft oriented threads of dielectric material and warp oriented threads alternately of a conducting material and of a dielectric material.

25. (Previously presented) The sensor of Claim 23, wherein the column electrodes and row electrodes each comprise parallel stripes of conductive paint.

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26. (Previously presented) The sensor of Claim 23, wherein the column electrodes and row electrodes each comprise a plurality of stripes of adhesive tape incorporating a thread of conductive material, the stripes of adhesive tape being laid over each other with the respective elastically compressible dielectric pad interposed at each crossing.

27. (Previously presented) The sensor of Claim 26, wherein the respective elastically compressible dielectric pad has a metal coating on both faces contacted by the thread of conductive material of the respective adhesive tape of one of the column and row electrodes.

28. (Previously presented) The sensor according to Claim 26, wherein the respective elastically compressible dielectric pad comprises a gas filled cushion, the opposite faces of which elastically swell and shrink depending on the pressure difference between the filling gas of the cushion and ambient air.

29. (Previously presented) A method of detecting pressure over a surface of a flexible object, the method comprising:

providing an array of pressure sensing pixel capacitors on the object and comprising column electrodes and row electrodes orthogonal to each other, and a plurality of individually spaced apart elastically compressible dielectric

pads positioned between each respective crossing of the column electrodes and row electrodes; and

scanning the pressure sensing pixel capacitors to detect the pressure over the surface of the flexible object.

30. (Previously presented) The method of Claim 29, wherein the column electrodes and row electrodes each comprise a fabric including weft oriented threads of dielectric material and warp oriented threads alternately of a conducting material and of a dielectric material.

31. (Previously presented) The method of Claim 29, wherein the column electrodes and row electrodes each comprise parallel stripes of conductive paint.

32. (Previously presented) The method of Claim 29, wherein the column electrodes and row electrodes each comprise a plurality of stripes of adhesive tape incorporating a thread of conductive material, the stripes of adhesive tape being laid over each other with the respective elastically compressible dielectric pad interposed at each crossing.

33. (Previously presented) The method of Claim 32, wherein the respective elastically compressible dielectric pad has a metal coating on both faces contacted by the thread of conductive material of the respective adhesive tape of one of the column and row electrodes.

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34. (Previously presented) The method according to Claim 32, wherein the respective elastically compressible dielectric pad comprises a gas filled cushion, the opposite faces of which elastically swell and shrink depending on the pressure difference between the filling gas of the cushion and ambient air.

35. (Previously presented) A method of trimming a sail to maximize net pressure acting on the windward face of the sail, the method comprising:

providing an array of pressure sensing pixel capacitors on the sail and comprising column electrodes and row electrodes orthogonal to each other, and a plurality of individually spaced apart elastically compressible dielectric pads positioned between each respective crossing of the column electrodes and row electrodes;

scanning the pressure sensing pixel capacitors to detect the pressure over the surface of the sail; and

producing real time distribution maps of the detected pressure over at least a substantial portion of the sail surface on a display.

36. (Previously presented) The method of Claim 35, wherein providing the array of pressure sensing pixel capacitors comprises applying the array of pressure sensing pixel capacitors on both faces of the sail; and wherein producing real time distribution maps comprises producing

distribution maps of differential pressure on the windward and on the leeward face of the sail.

37. (Previously presented) A bidimensional pressure sensor for producing a distribution map of pressure over a surface of a flexible object, the sensor comprising an array of pressure sensing pixel capacitors comprising column electrodes and row electrodes orthogonal to each other and spaced, at least at each crossing between a column electrode and a row electrode, by an elastically compressible dielectric, and readable by sequentially scanning the pixel capacitors;

the column electrodes and row electrodes each comprise a plurality of stripes of adhesive tape incorporating a thread of conductive material, the stripes of adhesive tape being laid over each other with the elastically compressible dielectric interposed at each crossing; and

the elastically compressible dielectric has a metal coating on both faces contacted by the thread of conductive material of the respective adhesive tape of one of the column and row electrodes.

38. (Previously presented) The sensor of Claim 37, wherein the column electrodes and row electrodes each comprise a fabric including weft oriented threads of dielectric material and warp oriented threads alternately of a conducting material and of a dielectric material, the fabrics being

fastened onto opposite faces of the elastically compressible dielectric.

39. (Previously presented) The sensor of Claim 37, wherein the column electrodes and row electrodes each comprise parallel stripes of conductive paint applied onto a respective face of the elastically compressible dielectric.